

**We claim:**

1. An automated synthesis apparatus (1) for carrying out chemical reactions with  
5 reflux cooling comprising one or more reactor modules (2) each having one reactor  
(3), one or more feed vessels (4) each for a liquid reactant or reactant mixture and  
also one or more metering and feed devices (5) for the introduction of liquid  
reactant or reactant mixture from the feed vessel (the feed vessels) (4) into the  
10 reactor (3), wherein each reactor (3) has a lid (13) which is configured as a hollow  
body and encloses a hollow space (14), with an inlet line (15) and an outlet line  
(16) for a heat transfer medium into or out of the hollow space (14) and with one or  
more through-lines for introduction of each liquid reactant or reactant mixture into  
the reactor (3).
- 15 2. An automated synthesis apparatus (1) as claimed in claim 1, wherein the lid (13) is  
flat and is preferably configured as a flat disk.
3. An automated synthesis apparatus (1) as claimed in claim 1 or 2, wherein the inlet  
line (15) for the heat transfer medium projects into the hollow space (14) of the lid  
20 (13) and/or the outlet line (16) for the heat transfer medium ends flush with the  
interior wall of the lid (13) enclosing the hollow space (14).
4. An automated synthesis apparatus (1) as claimed in any of claims 1 to 3, wherein  
the through-line(s) (16) projects (project) beyond the lower edge of the lid (13) into  
25 the interior space of the reactor (13).
5. An automated synthesis apparatus (1) as claimed in any of claims 1 to 4, wherein  
the lid (13) has an increased cross section at its underside and at its upper side.